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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/900,951	07/10/2001	Natsuhiko Mizutani	35.C15550	7967

5514 7590 03/28/2003

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EXAMINER

TURNER, SAMUEL A

ART UNIT PAPER NUMBER

2877

DATE MAILED: 03/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/900,951

Applicant(s)

MIZUTANI ET AL.

Examiner

Samuel A. Turner

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 July 2001 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

The title of the invention is not descriptive. A new title is required that is clearly indicative of the **invention** to which the claims are directed.

Rejections Under 35 U.S.C. § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-20 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

In claims 1-11 the apparatus claimed is vague and indefinite as the means, elements, or structures claimed are not positively claimed due to the functional language in the claims.

In claims 12-20 the method are indefinite in that the method claims cannot depend on the structure of the apparatus claims from which they depend for patentability.

In claim 4 there is no antecedent basis for "there respective optical waveguides", "said first semiconductor ring laser", and "said second semiconductor

ring laser”.

In claim 7 there is no antecedent basis for “said planes nonperpendicular”.

In claim 8 there is no antecedent basis for “said planes in parallel”.

In claim 9 there is no antecedent basis for “said planes nonperpendicular”, “said planes in parallel”, “said one plane”.

In claim 10 there is no antecedent basis for “said planes nonperpendicular”, “said planes in parallel”, “said one plane”.

In claim 11 there is no antecedent basis for “said semiconductor ring laser gyro”.

In claims 12, and 13 there is no antecedent basis for “said two semiconductor ring lasers”.

In claim 15 there is no antecedent basis for “said two respective semiconductor ring lasers”.

In claim 18 there is no antecedent basis for “said respective semiconductor ring lasers”.

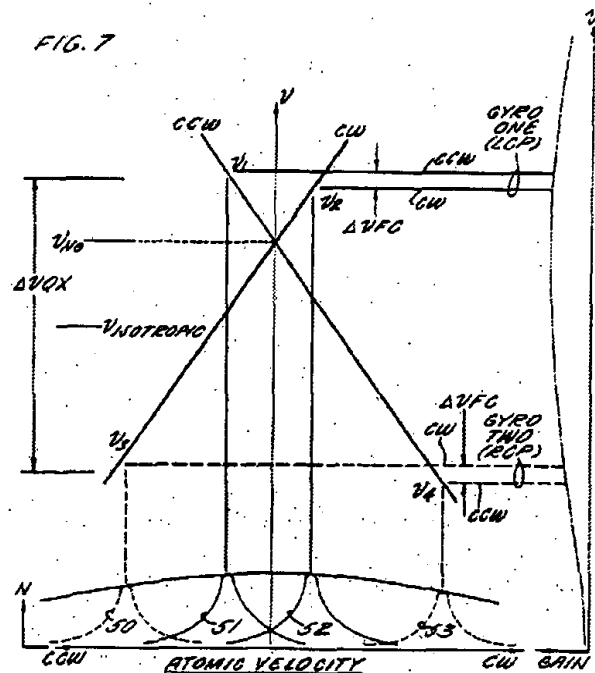
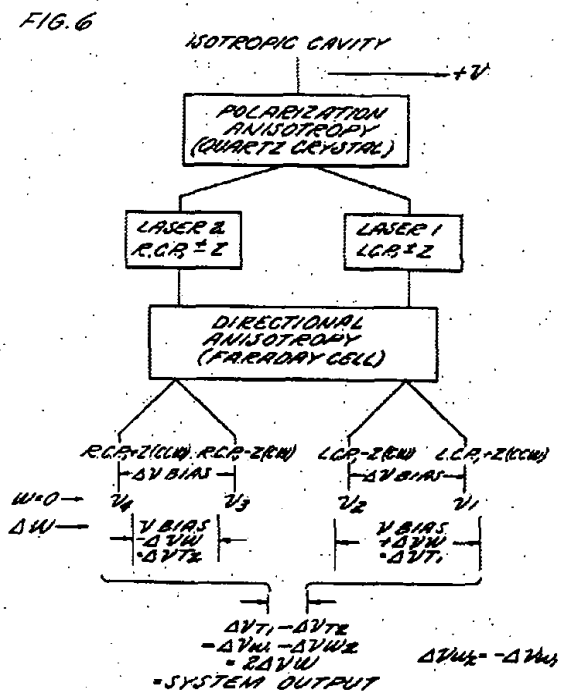
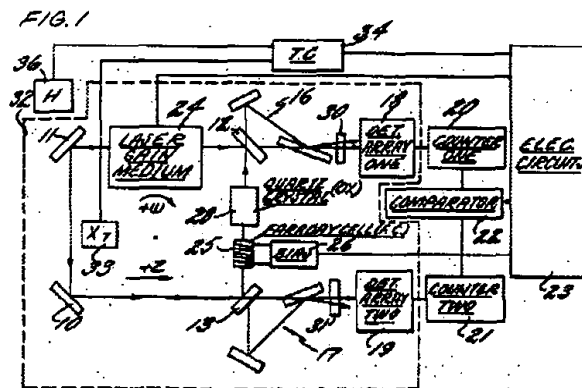
In claim 20 there is no antecedent basis for “said ring resonator”, and “said respective ring resonators”.

Rejections Under 35 U.S.C. § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

Claims 1-3, 5-8, and 10 are rejected under 35 U.S.C. § 102(b) as being clearly anticipated by Yntema et al(3,862,803).



Yntema et al teach a differential laser gyro system comprising a square ring laser with mirrors(10-13), laser gain medium(24), Faraday bias cell(25), and quartz crystal(28); left circularly polarized(LCP) gyro output(16,30), and detector(18); right circularly polarized(RCP) gyro output(17,31), and detector(19); counters(20, 21); comparator(22); and control electronics(23). See figure 1. Due to the effects of the Faraday cell and the polarization anisotropic quartz crystal, four different beams are produced inside the ring laser. A first gyro is formed by counter-rotating LCP beams while a second gyro is formed by the counter-rotating RCP beams. Because the beams are oppositely circularly polarized they are optically independent. The effects of angular velocity on the different gyros is opposite, as the beat frequency between the LCP beams increased the beat frequency between the RCP beams would decrease. See also figures 6 and 7.

With regard to claims 1, 3, and 5-8; the LCP and RCP gyros meet the claimed limitations.

With regard to claim 2, the LCP and RCP have the same beat frequency when stationary.

With regard to claim 10 the gyro is not formed on a semiconductor substrate.

Rejections Under 35 U.S.C. § 103

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

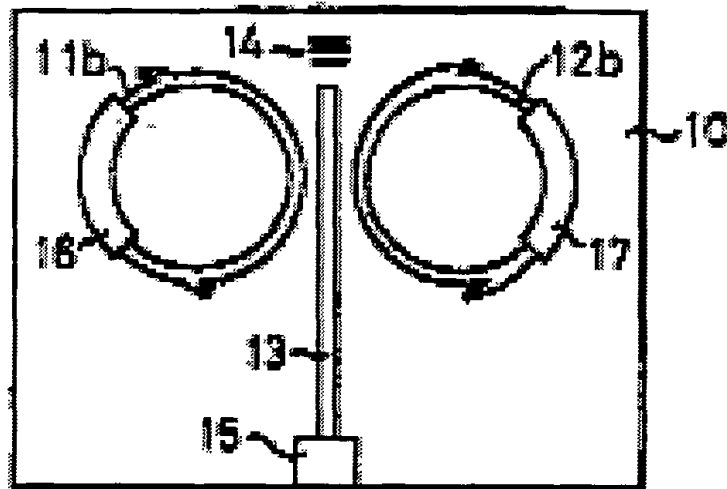
(a) A patent may not be obtained though the invention is not identically

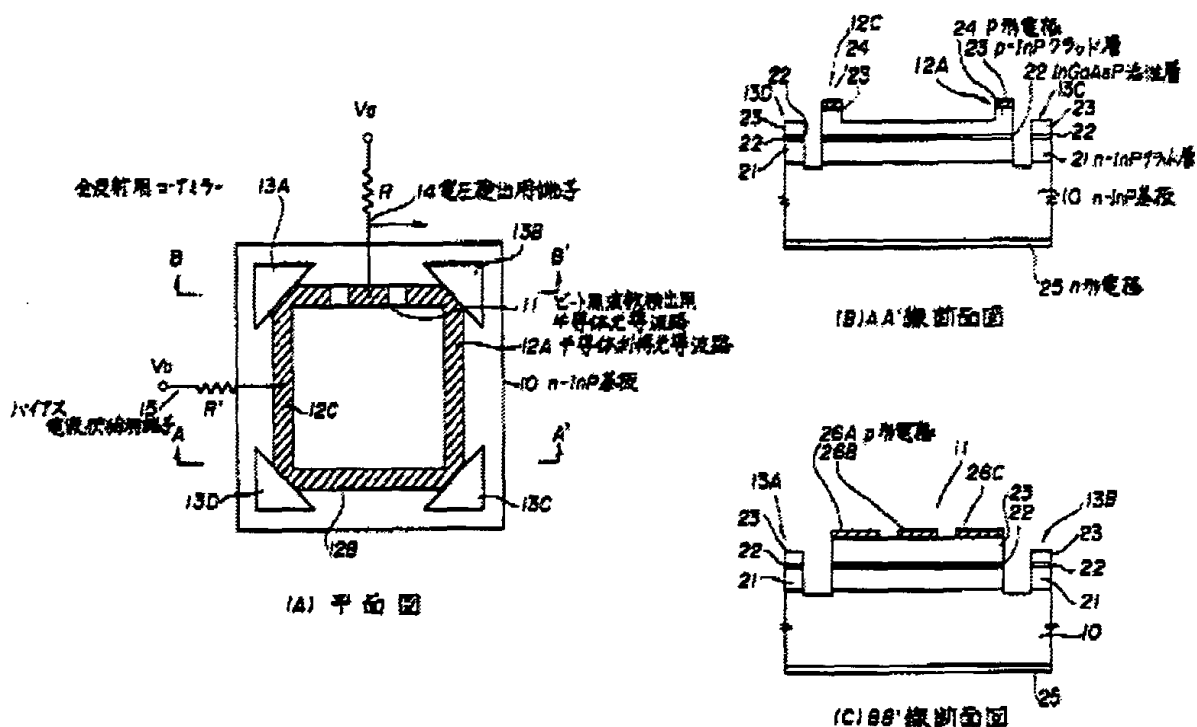
disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. § 103(c) and potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103(a).

Claims 12-20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hideo(JP59041883) in view of Masahiro(JP4174317).

第 7 図





本發明第2實施例示意圖

第 2 圖

Hideo teaches a semiconductor gyro having two ring lasers(11,12), an output waveguide(13), and a detector(15). Not taught is driving the ring lasers with a constant current and detecting the voltage or current change, or where the driving current or voltage is the same for each ring laser.

Masahiro teaches a semiconductor ring laser gyro comprising a substrate(10), ring resonator(11,12a-12c), corner mirrors(13), electrodes(24 and 26a-26c), oscillation current is supplied from source V_a, and a bias current from bias source V_b. See figure 2.

With regard to claims 12-16; it would have been obvious to one of ordinary

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skill in the art to modify the output of Hideo by replacing the optical output with current/voltage measurement found in Masahiro.

With regard to claims 17-20; it would have been obvious to one of ordinary skill in the art to replace the uni-directional rings of Hideo with the ring laser as taught by Masahiro, while maintaining the opposite bias between the two ring lasers to improve the gyro sensitivity.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel A. Turner whose telephone number is (703) 308-4803. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font, can be reached on (703) 308-4881.

The fax phone number for this Group is (703) 308-7722. The faxing of papers related to this application must conform with the notice published in the Official Gazette, 1096 O.G. 30 (15 November 1989). The Group receptionist telephone number is (703) 308-0956.

Any inquiry of a technical nature regarding reissues, petitions, and terminal disclaimers should be directed to Ed Glick whose telephone number is (703) 308-4858, Hien Phan whose telephone number is (703) 308-7502, or Ed Westin whose telephone number is (703) 308-4823.

Any other inquiry of a technical nature, and all inquiries of a general nature including those relating to the status of this application or any patent term adjustment should be directed to TC2800 Customer Service Office whose telephone number is (703) 306-3329.



Samuel A. Turner
Primary Examiner
Art Unit 2877

SAT
March 20, 2003